RARE SPECIES OF HOVERFLIES (DIPTERA: SYRPHIDAE) FROM UKRAINE. I. ERISTALINAE AND SYRPHINAE

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Prokhorov, A. V., Popov, G. V. & Zaika, M. I. Five rare species of hoverflies (Diptera: Syrphidae) from Ukraine. I. Eristalinae and Syrphinae. Summary. New findings of rare species: *Chalcosyrphus rufipes* (Loew, 1873), *Xylota caeruleiventris* (Zetterstedt, 1838), *X. xanthocnema* Collin, 1939, *Doros profuges* (Harris, 1780) and *Eupeodes nuba* (Wiedemann, 1830) (subfamilies Eristalinae and Syrphinae) are presented. Distribution of these species is considered, and diagnoses of *X. caeruleiventris* and *E. nuba* are given.

Key words: Diptera, Syrphidae, *Chalcosyrphus*, *Xylota*, *Doros*, *Eupeodes*, Ukraine.

Прохоров, О. В., Попов, Г. В. і Заїка, М. І. Рідкісні види мух-повисюх (Diptera: Syrphidae) з України. I. Eristalinae and Syrphinae. Резюме. Представлено нові знахідки рідкісних видів мух-повисюх з підродин Eristalinae та Syrphinae: *Chalcosyrphus rufipes* (Loew, 1873), *Xylota caeruleiventris* (Zetterstedt, 1838), *X. xanthocnema* Collin, 1939, *Doros profuges* (Harris, 1780) і *Eupeodes nuba* (Wiedemann, 1830). Розглянуто розповсюдження цих видів, надано діагнози видів *X. caeruleiventris* і *E. nuba*.

Ключові слова: Diptera, Syrphidae, *Chalcosyrphus*, *Xylota*, *Doros*, *Eupeodes*, Україна.

Прохоров, А. В., Попов, Г. В. и Заика, М. И. Редкие виды мух-журчалок (Diptera: Syrphidae) из Украины. I. Eristalinae and Syrphinae. Резюме. Представлены новые находки редких видов мух-журчалок из подсемейств Eristalinae и Syrphinae: *Chalcosyrphus rufipes* (Loew, 1873), *Xylota caeruleiventris* (Zetterstedt, 1838), *X. xanthocnema* Collin, 1939, *Doros profuges* (Harris, 1780) и *Eupeodes nuba* (Wiedemann, 1830). Рассмотрено распространение этих видов, даны диагнозы видов *X. caeruleiventris* і *E. nuba*.

Ключевые слова: Diptera, Syrphidae, *Chalcosyrphus*, *Xylota*, *Doros*, *Eupeodes*, Украина.

Introduction

While studying hoverflies in the recent years in Ukraine (from the Zakarpattia Region in the West to the Luhansk Region in the East, and from Kyiv in the North to the Odesa and Zaporizhia in the South) the new data on rare species distribution were collected. Known Ukrainian references on these species remained very scarce. This publication starts a series of papers devoted to the rare Ukrainian syrphids in the context of the European fauna.

Material and methods

The photographs were taken using a Canon Power Shot A 640 camera, mounted on Carl Zeiss Stemi 2000 binocular microscope and all images subsequently enhanced with Adobe Photoshop CS6 and Helicon Focus (version 6.0.18) software packages. Photographs are prepared by A. V. Prokhorov. All specimens of hoverflies are deposited in the collection of the I. I. Schmalhausen Institute of Zoology, National Academy of Sciences, Kyiv

(Ukraine). Diagnoses are generally based on the keys by Bartsh et al. (2009) and Speight & Sarthou (2016). The synonymy follows Peck (1988) with some addition and correction (Bartsh et al., 2009).

Results

Subfamily Eristalinae

Tribe Milesiini

Subtribe Xylotina

Chalcosyrphus rufipes (Loew, 1873) (fig. 1)

Speight, 2016: 24 (Ukraine).

Material examined. Ukraine: Zakarpattia Region, Kamianytsia env., Uzh River valley (left bank), 48.70N 22.43E, 9–10.05.2017, 6 ♂ (A. Prokhorov), 11.05.2017, 1 ♂ (G. Popov).

Distribution: Poland, Czech Republic, Slovakia, Hungary, Romania, Serbia, Kosovo, Montenegro, Ukraine, Transcaucasia, Central part of European Russia, West and East Siberia, Far East of Russia, Mongolia (Peck, 1988; Mutin & Barkalov, 1999; Bartsh et al., 2009; Speight, 2013; Speight, 2016). Data on the records from Sweden and Finland are mentioned by Speight (2016) only.

Notes. *Chalcosyrphus rufipes* lives in humid deciduous forest of *Fagus* and *Quercus*, also in alluvial hardwood forest and riparian gallery forest (Speight, 2016). Our specimens were collected in humid deciduous forest of *Fagus* with admixture of *Ulmus*, *Acer* and *Carpinus*, along road at an altitude of 200–250 m a.s.l.). Larvae found in rotten wood under the bark of old trunks and in moist tree-holes of *Populus* and *Tilia* (Krivosheina, 2001; Speight, 2016).

Xylota caeruleiventris (Zetterstedt, 1838) (fig. 2)

Anikina, 1964: 5 (*Zelima caeruleiventris*) (Zakarpattia Region); Stackelberg, 1970: 94 (Ukraine); Lezhenina, 1987: 67 (Trans-Dnipro Ukraine); 1993: 62 (Trans-Dnipro Ukraine) (*X. coeruliventris*).

Material examined. Ukraine: Potashnia env., 50.71N 29.74E, 21.05.2015, Tal River floodplain, 1 ♂; Irpin env., 50.50N 30.28E, along the railway, 4.06.2016, 1 ♀ (A. Prokhorov).

Distribution: northern and central Fennoscandia (Norway, Sweden, Finland) and through Central European territory of the Russian Federation and Siberia to the Pacific Coast, Kuril Islands and Japan; Germany, Czech Republic and Slovenia in Central Europe (Mutin & Barkalov, 1999; Mutin, 2001; Doczkal, 2004; Dolezal & Romig,

Fig. 1. *Chalcosyrphus rufipes*, habitus of the male, dorsal view.

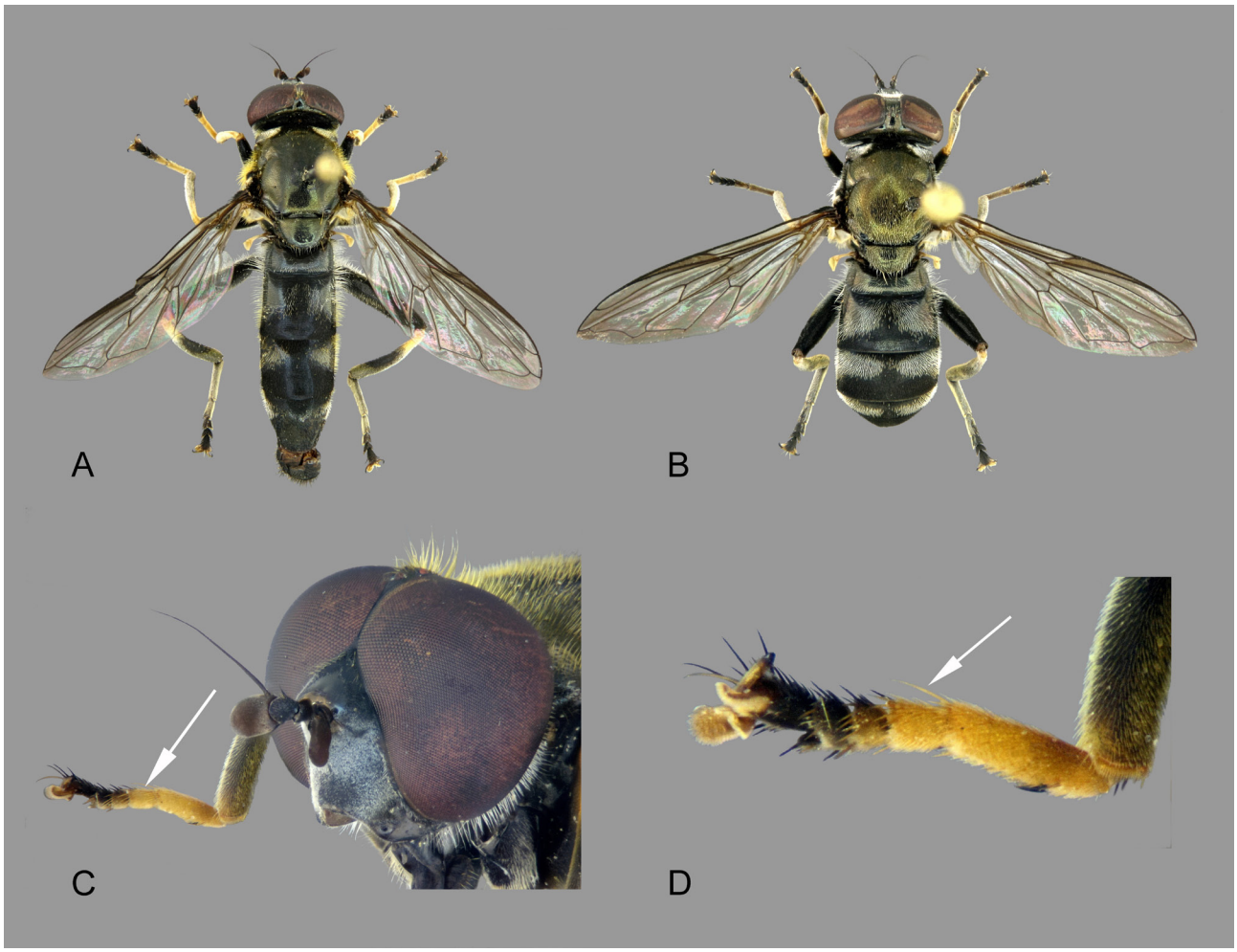

Fig. 2. X*ylota caeruleiventris*: A — habitus of male, dorsal view; B — habitus of female, dorsal view; C — head of male with fore leg; D — fore tarsus of male (basitarsus with long bristles).

2004; Groot & Govedič, 2008; Speight, 2016). European references to the occurrence of *X. caeruleiventris* prior to 2002 (Peck, 1988, for example) cannot be relied upon, due to confusion with *X. jakutorum* Bagatshanova, 1980 (Speight, 2016).

Diagnosis. Male: usually differs from closely related *X. jakutorum* by the tergites 2–3 with pale marks lacking (fig. 2 A), however "central European males of *X. caeruleiventris* can have vestigial pale marks on the tergites" (Speight, 2016). Additional differences: fore basitarsus of *X. caeruleiventris* bears "one or two long, white, bristly hairs, dorso-apically, close to the antero-lateral margin of the basitarsus" (Speight & Sarthou, 2016), as shown on fig. 2 C, D); "in *X. caeruleiventris* the clypeus is less than 1.5× as long as wide, while in *X. jakutorum* it is distinctly more than 1.5× as long as wide" (Speight, 2016). **Female** (fig. 2 B): "all bristles on thoracic dorsum yellow (occasionally with a few black hairs)" (in *X. jakutorum* "bristles on thoracic dorsum surrounding wing-base exclusively or mainly black"), "sides of sternite 1 narrowly dusted" (in *X. jakutorum* broadly dusted), "underside of mid femur almost completely covered with dusting near apex" (in *X. jakutorum* "underside of mid femur almost lacking dusting" (Bartsh et al., 2009).

Notes. This species inhabits a variety of forests: the taiga forest, mixed boreal forest, relict sub-boreal transition mire with *Pinus sylvestris* or *P. uncinata* and bog with *P. sylvestris* in central Europe (Speight, 2016). Our specimens were collected in mixed forest of *Pinus sylvestris* and *Quercus robur*, at an altitude of 100 m a.s.l.). Larvae probably under the bark of water-logged, fallen trunks of recently-fallen *Pinus* in, or at the edge of, bog and transition mire (Speight, 2016).

Xylota xanthocnema Collin, 1939 (fig. 3)

Popov, 1994: 78 (Donetsk Region).

Material examined. Ukraine: Ivano-Frankivsk Region: 35 km S Yaremche, 48.15N 24.53E, Pozhyzhevska Mt., 1300–1500 m a.s.l., 28.07.2016, 1 ♂ (A. Martynov); Donetsk Region: Debaltsevo, 11.06.1993, 1 ♀ (G. Popov).

Distribution: from Denmark south to the Pyrenees; from Britain (England) eastwards through Central and

Fig. 3. *Xylota xanthocnema*, habitus of male, dorsal view.

Southern Europe into European Territory of Russia and Transcaucasia (Peck, 1988; Holinka & Mazánek, 1997; Speight, 2016).

Notes. This species inhabits well-drained deciduous forests, from the lower levels of *Fagus* / *Picea* forest down to alluvial hardwood forest still subject to seasonal flooding, on sites with a well-drained soil (Speight, 2016). The specimen from Donetsk Region was collected in a ravine deciduous forest of *Quercus robur* with admixture of *Fraxinus excelsior*, *Acer platanoides, A. tataricum* and *A. campestre* at an altitude of 250–300 m a.s.l. within the Steppe Zone. Larva was described from the exudate and rot-holes of *Taxus*, a standing-water rot-hole in *Abies*, and also from a rot-hole in *Quercus* (Hartley, 1961; Krivosheina, 2001; Rotheray, 2004; Speight, 2016).

Subfamily Syrphinae

Doros profuges (Harris, 1780) (fig. 4)

Lezhenina, 1987: 67 (Trans-Dnipro Ukraine); 1992: 88 (Donetsk Region); 1993: 60 (Trans-Dnipro Ukraine); Popov, 1994: 56 (Donetsk Region) (*Doros conopseus*).

Material examined. Ukraine: Kyiv Region, Irpin env., 50.51N 30.27E, 2.06.2016, 1 ♂ (M. Zaika); Donetsk Region, Novopoltavka env., 48.69N 36.86E, 26.06.1993, 1 ♂ (O. Pak & A. Shtirts). Also one specimen from Donetsk Region was observed in Mykolaivka env. (48.87N 37.78E, 15.07.1992, G. Popov), in well-drained forest of *Q. robur* and *R. pseudoacacia*, at an altitude about 100 m a.s.l.

Distribution: from southern Norway and southern Finland south to central Spain; from Ireland east through most of central and southern Europe and on through Eurasia (including Transcaucasia) to the Pacific coast (Japan); also recorded from Mongolia and of China; near the borders of Ukraine it occurs also in Poland, Czech Republic, Slovakia, Romania and European territory of Russia (Peck, 1988; Holinka & Mazánek, 1997; Speight, 2016).

Notes. This species prefers deciduous forest: *Quercus*/*Fraxinus* (both mature and scrub) and *Corylus* scrub on well-drained sites, which have been forested for a considerable period of time; well-drained, ancient, unimproved pasturage invaded by scrub (including *Rubus* and *Taxus*) (Speight, 2016). The specimen from Kyiv Region was collected on dry edge of mixed forest of *Pinus sylvestris* and *Q. robur* along railway, at an altitude about 100 m a.s.l.). The specimen from Donetsk Region (Lezhenina, 1992) was collected on dry edge of steppe deciduous wood, at an altitude about 30 m a.s.l.). The specimen from Donetsk Region (Popov, 1994) was collected on dry edge of *Robinia pseudoacacia* forest along roadside verge, at an altitude about 100 m a.s.l.).

Fig. 4. *Doros profuges*, habitus of male, dorsal view.

Larva is believed to be an ant commensal, probably with *Lasius fuliginosus* (Speight, 1988, 2016).

Eupeodes nuba (Wiedemann, 1830) (fig. 5)

Popov, 2010: 32 (Luhansk Region).

Material examined. Ukraine: Kyiv Region, Irpin env., 50.51N 30.27E, 15.06.2010, 1 ♀ (M. Zaika leg.); Luhansk Region, 'Striltsivsky Step' nature reserve, 49.30N 40.09E, 28.07.2010, 1 ♂ (G. Popov leg.).

Distribution: Madeiran Archipelago and Canary Isles, Mediterranean basin, from mainland Portugal to Italy (Sicily) and Malta, Croatia, Montenegro, Serbia, Crete, Cyprus, Lebanon, Israel, Egypt and Morocco; Switzerland, Romania; Transcausasia, Turkmenistan, Uzbekistan, Kirghizstan, Tajikistan, Iran, Afghanistan and Mongolia; in eastern parts of the Afrotropical region from Ethiopia south to S Africa (inclusive) (Peck, 1988; Ebejer, 1995; Smit et al., 2004; Khaghaninia, Farshbaf Pour Abad & Hayat, 2011; Speight, 2016). Ukrainian records are the northern most of the known ones.

Diagnosis. *Eupeodes nuba* is closely related to *E. corollae* (Fabricius, 1794). **Male**: differs from *E. corollae* (as well as from the rest of species) by the entirely yellow legs. **Female**: differs from *E. corollae* by the mesoscutum entirely shining (in *E. corollae* median third of width of mesoscutum dusted from anterior margin to scutellum), face entirely yellow (in *E. corollae* face normally with facial knob darkened), postero-lateral fringe on front femora entirely yellow-haired (in *E. corollae* it includes some scattered black hairs, at least in the apical half of the length of the femur), tarsi and tibiae yellow (in *E. corollae* tarsi darker than tibiae).

Notes. Preferred habitats of the species are open ground, sparsely vegetated ground beside dry, seasonal rivers; by seasonal streams in maquis; hedgehog heath; Mediterranean dune scrub; coastal dune systems (Speight, 2016). The specimen from Luhansk Region was collected on dry edge of riparian deciduous forest. Developmental stages not described (Speight, 2016).

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Fig. 5. *Eupeodes nuba*, habitus of female, dorsal view.

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